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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/507,171

09/10/2004

Malcolm Pressley

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EXAMINER

KNOX, STEWART

ART UNIT

PAPER NUMBER

3641

MAIL DATE

DELIVERY MODE

05/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/507,171

Applicant(s)

PRESSLEY, MALCOLM

Examiner

Stewart T. Knox

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 10-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

1. Claims 1-2, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue (4,369,689) in view of Hiorth (4,191,480) in view of Halliday (4,966,077). Donaghue discloses an apparatus for the mixing of explosive materials, comprising a reservoir of pre-mix explosive material (element 1), a reservoir of hardener material (element 7, col. 4 lines 40-45 – isocyanate, a component of IPDI), a mixer (deflector plate 5), and a method of using the apparatus. Donaghue does not disclose the two reservoirs having separate pipe means associated with each reservoir to connect to a static mixer, wherein the materials are combined at the inlet of the mixer, or a hydraulic cylinder and ram assembly. Hiorth discloses a static mixer for the mixing of explosive materials from two reservoirs (A, B) comprising separate piping (elements 12 and 22) associated with each of the reservoirs that mix substantially at the inlet of the static mixer in order to solve the problem where the intermixing of the materials results in a change of consistency that hampers the further treating process (col. 2 lines 6-12) and provide a continuous mixing process that does not require any moving parts other than the materials themselves (col. 1 lines 13-16), thus reducing the problems associated with a finite pot life of the mixture (i.e. mechanical breakdowns, length of time that the mixture is combined before being dispensed). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixer of Donaghue with the static mixer and pipe connections of Hiorth, since such a modification would provide the explosives mixer with a means of mixing explosives where the change in consistency (i.e. hardening or curing) or a breakdown in the machinery will be less likely to cause problems.

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2. With respect to the hydraulic cylinder and ram assembly, Halliday teaches that it is known to provide a hydraulic cylinder and ram assembly that is coupled to apply controlled pressure to a pre-mix explosive material, upstream of a static mixer (col. 4 lines 48-50, col. 5 line 65), in order to control the rate of finished material that exits the mixer and control the ratio of materials in the mixer (col. 1 lines 40-65, col. 3 lines 59-69 and col. 4 lines 1-4, col. 5 lines 29-69). With respect to claim 11, this further constitutes a flow meter (col. 5 lines 48-64, by counting cylinder strokes) for determining the flow of the pre-mix explosive material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the mixing assembly of Donaghue to use a hydraulic cylinder and ram assembly as taught by Holliday, since such a modification would provide the mixing assembly with an apparatus to precisely control the composition and flow of the mix explosive material.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue, Hiorth and Halliday as applied to claim 1 above, and further in view of AECI Limited (UK Patent Application GB 2 205 386 A). Donaghue, Hiorth and Halliday disclose the claimed invention except piping for filling ordnance with explosive material. AECI discloses an explosives mixer that utilizes a static mixer and channels the output into cartridge shells or other ordnance (pg. 1 lines 1-5). Alternately, the cylindrical tube of Donaghue is capable of being used to fill ordnance if it is placed over an empty shell. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixer of Donaghue, Hiorth and Halliday to be able to fill ordnance as well as bore holes, since such a modification would let the explosive composition be used in situations other than just the filling of bore holes.

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4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donaghue, Hiorth, and Holliday as applied to the claims above, and further in view of Pyle (4,503,994). The combined references disclose the claimed invention including an automated ordnance fill level controller by way of a stroke counter in the hydraulic cylinder of Holliday, but do not disclose the controller comprising at least one fiber optic sensor. Pyle discloses a fiber-optic liquid level sensing device that will shut off the flow of fluid when it reaches a certain height. Conventional means for performing this task may have been as simple as a technician observing the level of explosive in the borehole or ordnance and adjusting the motor/pump accordingly. To one of ordinary skill in the art, though, this is inefficient and it would be optimal to replace this with a more precise, non-human measuring tool to fill the container to a predetermined level (col. 1 lines 15-16), and a fiber-optic shutoff system is disclosed. It would have been obvious to one of ordinary skill in the art to modify the explosives mixer of Donaghue to use a fiber-optic sensing device (as disclosed by Pyle) to determine when the bore hole or ordnance has been filled to the top, since such a modification would allow for the device to run more automatically and not require the constant input and monitoring of a human user.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being obvious over Donaghue in combination with the others as applied to claim 1 above. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the explosives mixing assembly of Donaghue to mix plastic bonded explosives (PBX), since it was known in the art that PBX is cured by IPDI (see, e.g., Condo 5,059,261 col. 4), isocyanate (or IPDI) being the curing agent as provided by Donoghue, and such a modification would allow the production of different types of explosives.

***Response to Arguments***

6. Applicant's arguments filed 3/14/2007 have been fully considered but they are not persuasive.

7. Applicant asserts that the term "explosive" means that a material comprises a fuel and an oxidizer. It is noted that the features upon which applicant relies (i.e., fuel and oxidizer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. Further, the term "pre-mix explosive material" does not explicitly forbid the material from being non-explosive prior to mixing. "Pre-mix explosive material" can reasonably be interpreted to mean a material that has not yet mixed, but upon mixture, will be explosive. The term "pre-mix explosive material" is taken to mean the components that will, upon mixture, comprise an explosive material.

9. Finally, applicant asserts that the Donoghue reference discloses mixing ammonium nitrite with a liquid, and that such components are not pre-mix explosive material. First, it is noted that Donoghue does not disclose ammonium nitrite, but rather discloses ammonium nitrate.

Ammonium nitrate is a component of explosive materials that is, by itself, explosive, albeit an explosive of low sensitivity. Thus, Donoghue does disclose a reservoir of pre-mix explosive material, as claimed and disclosed by applicant.

10. Applicant asserts that Halliday does not teach or suggest the provision of a hydraulic cylinder and ram assembly for controlling the flow of a pre-mix explosive material toward a static mixer by arguing that the arrangement of Halliday is different from the invention as

claimed, and that a hydraulic cylinder which applies pressure to a fluid differs fundamentally from a reciprocating pump.

11. In response, it is noted that Halliday discloses a hydraulic system with a piston (or ram) and cylinder construction, with the piston being reciprocable in the cylinder (col. 1 lines 40-65), where the piston can reasonably be interpreted to be a ram assembly. This configuration reads on the claim language of “a hydraulic cylinder and ram assembly” that applies pressure on the material.

12. Finally, applicant argues that these inventions would not work together as claimed because operating such machinery would be unsafe. However, as noted above, the term “pre-mix explosive material” is not limiting with regards to the materials being mixed. Secondly, Halliday does disclose the hydraulic cylinder and ram assembly as claimed. Thus, applicant’s argument about the safety of using such a device for a specific purpose, such purpose disclosed only in applicant’s specification, is not found persuasive.

### *Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Condo (5,059,261) discloses PBX cured with IPDI.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stewart T. Knox whose telephone number is (571) 272-8235. The examiner can normally be reached on Monday through Thursday, 8:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stewart Knox



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Troy Chambers  
Primary Examiner  
Art Unit 3641

23 April 2007